

# Looking at the Root Causes of Problems

## Preventing Repeat Mistakes

*Col. Brian Shimel, USAF*

**W**e, the acquisition community, have traditionally supplied American fighting forces with a distinct advantage on the battlefield, and ours is the best equipped fighting force in the world. But we are also not as efficient as we would like to be in supplying the warfighter. Too often, our systems are delivered behind schedule or over cost. We need to continue searching for improvements in delivery time and cost of systems.

One of our key constituents, Congress, cares so much about helping us improve our performance at delivering systems at cost and on schedule that it has established mandatory reporting requirements whenever a program exceeds its unit cost baseline by 15 percent—a Nunn-McCurdy breach—and certification from the Office of the Secretary of Defense when any program exceeds its unit cost baseline by 25 percent or more—a critical Nunn-McCurdy breach.

The Goldwater-Nichols Act streamlined and reorganized the acquisition chain of command. Through the program executive officer structure, the Service acquisition executives struggle to deliver systems that work to warfighters actively engaged around the world, all while facing challenges such as creeping requirements, cost and schedule overruns, and uncertain technical challenges. At the same time, the career fields carrying out this important mission bear the brunt of workforce downsizing initiatives aimed at improving the so-called “tooth-to-tail ratio.” (Just as an aside, how far can you cut before a tail becomes the backbone that delivers the tooth’s power?)

I propose we continue to look to the operational side of our Services to improve acquisition performance. The difficult part is finding elements from the operational world that inspire the acquisition workforce, fit the environment, and



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produce better performance—it needs to be more than just an organizational change. It is not enough for a new commander to appreciate his new organization's perspective; the organization also has to reach out to the commander and respect *his* perspective. Mutual respect and understanding are the key to true organizational success.

### **Taking the Root Cause Approach**

There are operational ideas and practices that can improve acquisition performance. After all, there is a common trait found in both the operational side and the acquisition side: a bedrock of respect for analysis and real proof that something will work before we trust our nation's defense to a new method or technology. Innovation and performance based on logical analysis and proven results are the key to operators and acquirers speaking a common language. For example, in World War II, the Army Air Corps studied the success rates of aircraft returning to English bases after raids over the European continent. Aircraft were often seriously mangled, limping back over the English Channel—or worse. Through detailed observation and analysis, it became clear that aircraft missing certain parts never returned. Those parts were reinforced, and more planes returned. This close analysis of problems and solutions evolved into the creation of new processes, including the development of the Safety Investigation Board and the Accident Investigation Board.

The intrusive, rigorous, and respected process conducted by the SIB is performed because the operational world is truly committed to finding the root cause of the problem and doing its best to keep it from happening again. The SIB has two components. The first part is a rapid reconstruction of the facts that led to the accident. Once accomplished, those facts are also used for the subsequent AIB, which definitively determines the cause(s) of the accident. The second part of the SIB is a non-attribution, internal assessment of the weapon systems' ability to perform their mission for national defense. This part reflects the best professional judgment of the board without bearing a substantial burden of proof (which is used by the AIB). The board's experience, objectivity, and independence allow them to quickly get the most probable answer to key decision makers. The purpose of the second part of the SIB is to prevent future accidents. For example, on April 3, 2006, a C-5 crashed at Dover Air Force Base, Del. Thanks to the efforts of the SIB and the AIB, by June 21, everyone (not just other pilots) could read a minute-by-minute account of the flight and the mistakes that led to the crash.

### **Applying Analysis to Improve Acquisition**

I contend the next step in improving acquisition is to continue with ideas that will make us, the acquisition community, accomplish the goal of acting more like warfighters.

We should hold the equivalent of an SIB whenever a program suffers a critical Nunn-McCurdy breach. We should use the results of this objective process to identify how we operate an acquisition program and to understand what “broke” the program and how we should behave in the future to improve performance, delivery speed, and economy. Finally, we should incorporate the lessons learned across the acquisition community and make the practice of them a command responsibility—the same way we investigate and correct problems that caused operational accidents—thus avoiding similar problems in

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future operations.

Currently, after a critical Nunn-McCurdy breach, the Department of Defense must certify to Congress that four key factors are still true before a program can continue to go forward, and four integrated process teams are created to review those key factors. They evaluate that a program is still essential to national security; that there is no alternative that can provide an equal capability; that new cost estimates are reasonable; and that the existing or redesigned management structure is adequate to control average unit costs in the future. The teams then make a final report and certification to Congress.

This current process fulfills the first part of the SIB, but it does not address the second part: making sure that all systems are still operating safely for the benefit of national defense. The operational side's safety review team judges whether the incident applies across the entire fleet. It decides if the responsible condition or behavior can or should be corrected or mitigated, and these recommendations are put into action. In the acquisition world, we appear to act as if each time a program overruns, it is a singular event. We continue to do our best, but only as it

## Defense AT&L Says Goodbye to Smith and Lowery

**W**ith this issue, *Defense AT&L* says goodbye to Tech. Sgt. James D. Smith, USAF, and Spc. Kelly Lowery, USA. Smith and Lowery, both visual information specialists, have supported the magazine in many ways, most notably with the onsite coordination of the lead interviews, where they directed the photography and managed the production of high-quality audio recordings.



Smith, noncommissioned officer in charge of the Defense Acquisition University Visual Arts and Press department, is a gifted graphic designer who provided original illustration for the magazine and for DAU's other periodical, *Defense ARJ*, and provided design and art direction for many other DAU publications. During his 12 years of Air Force service,

he has worked in other career fields, including intelligence and aircraft maintenance. With the deletion of his current career field, Smith is retraining as a chaplain's assistant.



Lowery excelled in putting interview subjects at the most senior levels at ease, ensuring appealing and natural photographs. A talented graphic designer, she was responsible for the redesign and art direction of DAU's electronic employee newsletter. She holds a bachelor's degree in graphic design from Louisiana Tech University. Lowery was named

DAU's junior enlisted person of the year for 2007. She has begun a tour of duty as a graphics specialist in Korea.

James and Kelly, thank you for everything you've done for *Defense AT&L* and for DAU. Good luck in your future endeavors. We'll miss you!

Judith Greig  
Executive Editor

meets budget constraints, optimistic estimates of technology maturity, and political compromises.

To take one program as an example: In 2001, the Space-Based Infrared System Program suffered a Nunn-McCurdy breach. It was restructured in 2002, and the Government Accountability Office analyzed the changes in 2003. The GAO found that SBIRS had passed its critical design review, even though just 50 percent of its design drawings were completed, compared to 90 percent completed, as recommended by best practices. In 2005, the SBIRS Program suffered another breach. In 2006, Air Force Deputy Under Secretary for Space Programs Gary E. Payton mentioned SBIRS in a presentation entitled "Nunn-McCurdys Aren't Fun," citing that after two breaches, there was no systems engineering master plan and no integrated master schedule, among other issues. Granted, this is a cursory overview of a complex program, but some of these problems sound predictable to me.

If we launched an aircraft with a damaged engine, we would be allowing unsafe practices. If we started a new acquisition program without full funding, half its design drawings, or no master schedule, we would say, "Good luck." The current process is not serving us well. We are sending our acquisition fleet back out again, day after day, hoping for the best, taking the same risks over and over again. We must stop expecting different results from the same inputs.

### Obtaining Different Results

In each Service, I suggest the major command responsible for training, organizing, and equipping the acquisition workforce convenes and operates a review board after each critical breach. The major command should ensure the results are made available through the broadest possible distribution. One example of potential candidates for this board is the acquisition wing commanders in the Air Force. They are not in the acquisition chain of command, and therefore, they have a measure of independence that would be highly desirable in this role. The Service acquisition executive would be responsible for putting the appropriate conclusions into practice before every new-start program. The existing integrated process teams would be a good structure to build on. We could perhaps add to their role or have them feed information to a follow-on board that would be responsible for gathering evidence and, over a period of time, creating a better set of principles under which to operate major defense acquisition programs.

### Is This New?

I have obtained great insight from knowledgeable people who are experienced in the acquisition business. I have read many high-level, top-quality initiatives, studies, commissions, and reports. Many still influence our structure, processes, and decisions with good intentions and results.



Many people speak a common language of speedy, stable acquisition. The solutions that may result from what I propose will not be different from what has been said in the past. So, what is keeping us from making these changes ourselves? Have we already met the enemy and, to paraphrase the great words of cartoonist Al Capp, is he us? The people at all levels of acquisition feel a huge burden to get working systems to the warfighter, and they make compromises—out of necessity—in technology maturity, schedule, requirements, and funding that, frankly, result in the unintended consequence of making us too expensive and too slow—the verdict from the 2005 Kadish Report (also called the Defense Acquisition Performance Assessment). We do a pretty darn good job in acquisition; but we are not as efficient as we want to be or as we should be. We get away with it because there is no competition.

I think what is new here is using the Nunn-McCurdy breach as an automatic trigger to start a review process and to apply the lessons learned across the acquisition community using the Service's or defense agency's method of mass communication. Payton's briefing title gives a clue to the current culture: "Nunn-McCurdys Aren't Fun." He is right, of course. But maybe because we try so hard to prevent the breaches that when they do occur, we don't fully embrace the breach as a chance to close the loop of a continuous improvement opportunity to understand what went wrong, and apply the relevant lessons across all acquisition programs.

The Defense Department should establish a culture that dictates this: Some things can't be compromised or deferred without acknowledging and accounting for the measurable impact they will make to a program's delivery speed, cost, and performance. To achieve this, we will have to be willing to admit our own mistakes! We will have to critically look at every system overrun, take ownership of the risks we imposed on ourselves, and put the appropriate resources into place to handle the risk. And we will need to stop taking the risks that continually show up as causes of failures.

If we accept that the reason we need to take a risk is worthwhile, then we align sufficient resources to cover the risk. The Department of Defense should be able to stop having to act surprised when the overrun occurs. It is the continual ratcheting down of preventable errors and the inevitable power of rising expectations and performance that will transform us—not the "eureka moments."

### Putting the Results into Practice

In the acquisition world, cost, schedule, and performance are the core of our culture. The first and foremost of these is delivering the right capability to the warfighter. The second is delivering it on time. The third is delivering it at the cost we expect. While we treat all three seriously, the truth is, we are most successful at the first one and less

## Links of Interest

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so at the second two. We must stop expecting different results from the same inputs. We deliver the right system to the warfighter, but too often we deliver that system over cost and behind schedule.

We have to hold tough, thorough reviews of cause/effect for troubled programs and their environments in the acquisition world; unflinchingly address our successes and our failures; and consolidate our results into actionable analysis, backed by the rare commodity of real insight. Then we can use that insight to start and operate acquisition programs under realistic conditions of success. Only when we back changes with evidence and analysis will we drive significant improvement in the overall programmatic success of weapons development. If we want to seriously respond to Congress and add operator-inspired performance, we should treat every critical Nunn-McCurdy breach as a Class A mishap—an unacceptable event—and hold the equivalent of a SIB to determine the root causes and address them; publish the results; make substantive changes to our strategies, tactics, funding, staffing, and/or training to make fact-based corrections and improve how we operate our mission. I recommend we invest in this effort.

We might not be able to draw a conclusion from reviewing a single program or a few programs, but over time and with a larger sample, we will discover revealing trends. And like the World War II airmen who met their challenges bravely, we may find that programs with certain issues rarely succeed. We will learn how trades in delivery speed, cost, and performance affect the risk we will knowingly accept or reject. Efficient, timely delivery of effective performance is our goal.

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